

6x SSC at 40°C for 15 minutes. As used herein, a signal to noise ratio of 2x (or higher) than that observed for an unrelated probe in the particular hybridization assay indicates detection of a specific hybridization. Nucleic acids which do not hybridize to each other under stringent conditions can still be substantially identical if the polypeptides which they encode are substantially identical. This occurs, e.g., when a copy of a nucleic acid is created using the maximum codon degeneracy permitted by the genetic code.

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IN THE CLAIMS:

Please cancel claims 7, 8 and 31 without prejudice to revival for subsequent prosecution.

Please add new claims 38-42.

Please replace claims 1, 6, 19, 24, 30, and 36 with the following clean copies of the amended claims. A marked up version showing the amendments in provided in Appendix A.

1. (twice amended ) An isolated or recombinant nucleic acid encoding menin, wherein said nucleic acid encodes a protein defined as follows:

- (i) having a calculated molecular weight of about 67.5 kDa; and
- (ii) having at least 60% amino acid sequence identity to a protein with a sequence as set forth in SEQ ID NO:2;

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wherein the isolated nucleic acid sequence specifically hybridizes to SEQ ID NO:1 under hybridization conditions comprising 50% formamide at 42°C and stringent wash conditions comprising 0.2XSSC at 65°C for 15 minutes.

6. (amended) The isolated or recombinant nucleic acid of claim 1, wherein the nucleic acid sequence encodes a menin protein that binds to an antibody raised against a polypeptide having an amino acid sequence as set forth in SEQ ID NO:2.

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19. (twice amended) A method for detecting in a test sample the presence or absence of a mutation in a human MEN1 gene comprising a nucleotide sequence that encodes a human menin as set forth in SEQ ID NO:2, or the presence or absence of a MEN1 allele, the method comprising:

14 a) contacting said test sample suspected of missing a MEN1 allele or encoding a mutant form of the human menin gene with a first oligonucleotide having a sequence that discriminates between the wild type gene and the missing allele or mutant form; and,

b) detecting the formation of a duplex between the gene and the first oligonucleotide sequence.

24. (twice amended) A kit for detecting in a test sample the presence or absence of a mutation in a MEN1 gene comprising a nucleotide sequence encoding a menin polypeptide as set forth in SEQ ID NO:2, the kit comprising;

5 a) a container holding a first oligonucleotide sequence that discriminates between the wild type gene and the mutant form; and

b) a container holding a reagent for detecting the formation of a duplex between the gene and the first nucleotide sequence.

6 D 30. (amended) A transfected cell comprising a heterologous nucleic acid of claim 1.

1 D 36. (twice amended) An expression cassette comprising a nucleic acid of claim 1, wherein the nucleic acid is operably linked to a promoter.

4 D 38. (new) An isolated nucleic acid encoding a polypeptide comprising the sequence set forth in SEQ ID NO:2.